CLAIMS

1. Process for isomerisation of paraffin hydrocarbons catalysed by an ionic liquid catalyst in the presence of one or more cyclic hydrocarbon additives in a reaction medium, which cyclic hydrocarbon additives contain and/or are transformed in the reaction medium to a compound containing a structural unit with a tertiary carbon atom.

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- 2. A process according to claim 1, wherein the cyclic hydrocarbon additive is chosen among compounds containing from 6 to 8 carbon atoms.
- 3. A process according to claim 1, wherein the cyclic hydrocarbon additive is chosen from methylcyclohexane, dimethylcyclopentane or mixtures thereof.
- 4. A process according to claim 1, wherein the ionic liquid catalyst comprises an N-containing heterocyclic and/or aliphatic organic cation and an inorganic anion derived from metal halides or mixed metal halides.
- 5. A process of claim 1, wherein a cation of the ionic liquid catalyst is an N-aliphatic moiety with one or more alkyl or aryl groups.
 - 6. A process of claim 5, wherein the N-aliphatic moiety is an ammonium compound and/or an alkyl substituted pyridinium, piperidinium or quinolinium compound.

- 7. A process of claim 1, wherein the anion of the ionic liquid is derived from a metal halide with strong Lewis acidic properties.
- 5 8. A process of claim 1, wherein the ionic liquid catalyst is obtained by combining N-containing heterocyclic and/or N-containing aliphatic organic compounds with one or more metal halides in a molar ratio of between 1:3 and 1:0.5.

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- 9. A process of claim 4, wherein the metal halide is selected from $AlCl_4$, $AlBr_4$, $GaCl_4$, Al_xCl_{3x+1} , 1< x< 2 and $Al_xCl_{3x}Br^-$, 1< x< 2.
- 15 10. A process of claim 1, wherein the isomerisation is performed at a pressure from 1 to 60 bar and a temperature from -30 to 150°C and a hydrocarbon feed: catalyst volume ratio is from 20:1 to 1:20.